II. Benjamini *à* Broeckhuyſen *Med. et Phil. Doct.* &c. *OECONOMIA CORPORIS ANIMALIS*, ſive cogitationes ſuccinctæ de Mente, Corpore, et utriuſque conjunctione, juxta Methodum Philoſophiæ *Carteſianæ*, deductæ. *Amſtelodami* 1683. 8°.

I. LUMBRICUS TERES, *or ſome* Anatomical *Obſervations on the* Round Worm *bred in human bodies. By* Edward Tyſon M. D. Col. Med. Lond. nec non. Reg. Societ. Soc.

HAving been ſo large in my *former* inſtance, in my *Diſcourſe* on the *Joynted-worm*, I intend to Contract my ſelf in *this*. Not that our preſent ſubject is ſcanty, or does not afford a ſufficient plenty of remarkable obſervations; But I choſe rather to ſelect what moſt ſuites our deſign. For to be exact and nice in all *particulars*, would require a juſt Treatiſe, and exceed the bounds I have at preſent ſet my ſelf.

I ſhall therefore here give the *Anatomy* of the *Lumbricus teres*, that common *Round Worm* which Children uſually are troubled with: and in this more particularly make my remarks upon the *Organs* of *generation* in both *Sexes*; and herein ſhew how vaſtly different they are from thoſe *parts* in the common *Earth Worms*, and it may be, moſt others. And withall I had deſigned, together with this, to have given the *Anatomy* of the *Earth Worm*, but ſince have altered my intentions: and at preſent ſhall refer to the account given of it by the famous Dr. *Willis*, reſerving my farther obſervations of it to another opportunity. This ſort of *Worm* by *Hippocrates* is named σκώληξ; by *Celſus*, *teres*; and is uſually about a foot long, or ſomething more, or leſs; but I have hitherto obſerved that the *Male* is generally leſſer than the *Female*: ſo that by their

their *bigneſs* in the ſame body I have before *diſſection* been able to diſtinguiſh the *Sex*. They are about the bigneſs of a Wheat ſtraw, or a Gooſe quil; their colour White; but being *ſubjects* ſo generally known to all, I ſhall forbear a further deſcription of their *outward parts*; Onely as I remember I did not obſerve thoſe *feet*, or aſperities on the *Annuli*, as in the *Earth Worm*. At both *extremes* they grow narrow. Their *mouth* is compos'd of three Lips as in our *figure*. So the *Leech* hath three Cartilaginous *Teeth* ſet in a triangle, by which they make the wound in the Skin in Suction. The *Anus* is a tranſverſe ſlit a little before the extreme point of the *Tail*.

In opening the body I found I cut thorow a large *Muſcle* under the Skin: Which Muſcle in *Earth Worms* I find is *ſpiral*; as in a good meaſure is their *motion* likewiſe; ſo that by this means, like the *Worm* of an *anger*, they can the better *bore* their paſſage into the Earth. Their *reptile* motion alſo may be explained by a Wire wound on a Cylinder; which when ſlip't off, and one end extended and held faſt, will bring the other nearer it. So the *Earth Worm* having ſhot out or extended it's body, (which is with a wreathing) it takes hold by thoſe ſmall *feet* it hath, and ſo contracts the hinder part of it's body.

Likewiſe I obſerved that dividing this part there iſſued out a copious *Ichor*; which is naturally diſcharged by ſome *Pores* or ſmall *Vents* in the Skin; which in the *Earth Worm* is of great uſe, by rendering the ſurface of the body ſlippery, that ſo it might the eaſierly glide into the Earth. And in theſe other *Worms* of the *Inteſtines* this humor (as in *Leeches*) makes a covering to the body, which is often caſt off, and obſerved as a *Mucus*, in the Stools of thoſe troubled with them.

In theſe *Teretes* of *Animal* bodies I never obſerved thoſe tranſverſe *Diaphragms* which are ſo numerous in *Earth Worms*, and do interſect or rather ſo deeply depreſs the *Inteſtine*. But the Cavity chiefly ſeems to be fill'd with

the *genital* parts, which I ſhall now deſcribe: Onely ſhall firſt remark that the paſſage from the *mouth* was ſome what ſtraightned for a ſhort ſpace, and was diſtinguiſhed, as in our figure, from the following *Ductus*; which was a ſtrait *Inteſtine* continued to the end of the body, without any winding or other diſtinction of a *Stomack* that I could obſerve.

As to the *Genital parts* of the *Male* I could here obſerve a *Penis*, a *Veſicula ſeminalis*, and a *Teſtis*: In the *Female* a *Pudendum*, *Vagina Uteri*, *Cornua Uteri*, and *Spermatick Veſſels*.

The *Penis* in the *Male* was placed at the *Tail* or oppoſite Extreme to the *head*; and ſeemed to be able to exert it ſelf almoſt the length of a Barley Corn, or proportionably to the length of the *Vagina* in the Female.

At the root of the *Penis* was inſerted the neck of the *Veſicula Seminalis*, which gradually grew larger as it aſcended in the body, and uſually did reach almoſt half way. 'Twas filled and turgid with a *milkie Juice*; Which it received from a *ſlender Veſſel* of the ſame Colour inſerted into it. Which after one turning, was afterwards very much convoluted; and being ſo, forms that body I call the *Teſtis*.

Altho' *this part* be ſo looſely contexed, as even to the naked Eye it appears but as a continued veſſel, and may eaſily be unravelled it's whole length, which I meaſured was above a Yard: yet I make no difficulty of giving it the name of a *Teſtis*; ſince 'tis now ſufficiently known, that the *Teſtes* in more compleat *Animals* are onely a *congeries* of *Veſſels*. And a *Rat*, beſides this *Worm*, is not the onely Subject wherein I have found them thus looſe and eaſily ſeparable.

In the *Female Worm*, almoſt about the middle of the body, but more towards the head, I obſerved an *Orifice* or *Pudendum*, which led into the *Vagina Uteri*; which ſoon divided into the two *Cornua* which were large, and remarkable

markable. For deſcending ſomething winding towards the *Tail*, they were then reflected again, and did each of them terminate in ſlender Veſſels, *White*, as they were, but much ſmaller; and did lye in ſeveral convolutions and windings amongſt them. Theſe I take for *Spermatick Veſſels*. Having taken thoſe *Veſſels*, with the *Cornua Uteri* and *Vagina*, out of the body, and laid them on a Paper to dry; I found from each *Cornu*, to the end of the *Spermatick Veſſels* which I had preſerved, that they meaſured above four foot.

I opened the *Cornua Uteri* and found them turgid with a *milky Juice*, having placed a little of it upon a ſmall *Microſcope*, I plainly perceived 'twas nothing elſe but an infinite number of ſmall *Eggs*; tho to the naked eye it appeared onely as a fluid body. Theſe *Eggs* when freſh, appeared, as is repreſented in our fourth *Figure*, covered with abundance of ſmall aſperities; but as they grew dry their Surface appeared Smooth.

By comparing that ſmall quantity I did obſerve, in which I could diſtinguiſh ſo many *Eggs*, with the whole ſubſtance contained in both the *Cornua*, I cannot gueſs there can be ſo few as 10000 *Eggs* in each *Female Worm*.

How far different *this Worm* is from *common Earth Worms* as to theſe *parts*, I need onely to refer to [a] Dr. *Willis*'s figures and account of it, to ſhew. And I am yet to learn what *Worm* out of the body has theſe *Organs* thus formed. When once there, the Caſe is plain how they propagate themſelves. And [b] *Menjotius*, and all before him, that were of that Opinion, are miſtaken; who ſay that theſe *Worms* do not *generate*; nor have any diſtinction of *Sexes*. [c] *Hippocrates* is expreſs, αἱ μὲν τρογγύλαι τίκτουσι. And I think nothing can be plainer then this diſtinction of *Sexes* in them.

(a) Willis *de Anima Brutor. cap.* 3.
(b) Ant. Menjotius. *diſſertat. Patholog. part.* 3. *p. m.* 512.
(c) Hippocr. *l.* 4. *de morbis.*

But

But I find on the other hand, there are *many* who do not onely allow them to generate, but do make them *Viviparous* too.

Thus *P.* [d] *Borellus* tells us, *Vermem Craſſum ab hominis Corpore eductum, fortèque pedibus exenteratum, non ſine admiratione vidi verniculis innumeris refertum eſſe.* So [e] *Amatus Luſitanus* tells much ſuch a Story; that a Girl voiding a large *Worm*, and the father treading on it, *ex eo alij prodierunt Vermes.* And [f] *Fœlix Platerus* gives an obſervation of a Boy that was Hydropical, and voided all his excrements upwards; who dying in the *Hoſpital*, and they obſerving a motion and palpitation in his belly, were afraid to bury him till they had ſent for the *Doctor*. He opening him found the *Inteſtines* in ſome places ſwell'd as big as his Thigh, in others ſo convoluted, intorted, and twiſted, that hindred any paſſage downwards, either of Excrements or Wind; *Sed & vermibus vivis quamplurimis repleta erant, qui rurſum alijs minoribus referti.* You may ſee an Inſtance likewiſe *de Vermibus fœtis* in *Salmuth Cent.* 3. *Obs.* 24. But [g] *Dominicus Panarolus* is very expreſs; and tells us he obſerved it thus in *two* ſeveral perſons. *In utroque expulſi fuerunt Vermes Colore Carneo, longitudine circa ſexdecem digitos, qui prægnantes erant, & ligno colliſi cum fuiſſent, apparuerunt vermes parvi, ſubtiles, albi, longitudine ſex digitorum, prope innumeri, qui tanquam ſerpentes parvi movebantur.* But whatever is related of *this* nature I cannot but think it is a *miſtake*; and that they were impoſed upon by the *Genital parts* of this Worm; which not warily examined, might eaſily make them to think they are ſo many ſmall *Worms*. For they are not *Viviparous* but *Oviparous*, as I have ſhewn; and their containing ſo vaſt a number of *Eggs* in the *Cornua*

(d) P. Borellus *hiſt. & obſerv. Cent.* 1. *Obs.* 89.
(e) Amatus Luſitanus *Cent.* 3. *curat.* 46.
(f) Fœlix Platerus *Obs. lib.* 3. *p. m.* 657.
(g) Dom. Panarol. *Obs. Med. Pentec.* 5. *Obs.* 15.

Uteri

Uteri, as I have expreſſed, does ſufficiently account for that prodigious quantity, that are ſometimes obſerved to be bred in *Animal* bodies.

[h] *Panarolus* tells us he once ſaw the Stomack and Guts ſtuffed with them ſo that they aſcended up to the Throat. [i] *Baricellus* by the uſe of *Crude Mercury* brought away from a Patient above a hundred. [k] *Jo. Jadoc. Weckerus* did the like with the uſe of *Tanſy* Seed and Syrup of *Violets*. *Gabucinus* ſaw voided by Stool 177. [l] *Benivenius* ſaw voided by a *Child* 7 years old 152 Worms. And [m] *Jacob Hollerius*, out of *Muſa*, gives us an Hiſtory of a man 82 years old, who voided above 500. And [n] *Petrus Paulus Pereda* ſaw a Noble-man's *Child* in a few days void almoſt a Thouſand, and ſhe voided 40 in 4 hours time.

Thoſe *Animal's* are uſually the moſt *Multiparous*, whoſe *young* are the moſt expoſed to danger; and were it not ſo here that the greateſt part of the *litter* of this *Worm* is uſually carried forth by the *Fæces*, it could not be avoided but we ſhould be devoured by an *Enemy* we breed in our own *Bowels*. That caution therefore of [o] *Henr. ab Heers* I think is neceſſary. To avoid the giving the Powder of theſe *Worms* for expelling others, ſince we cannot be ſecure but that at the ſame time we may ſow the Seed for propagating more.

(*h*) Panarol. *Pentec.* 1. *Obs.* 41.
(*i*) Baricel. *in hortulo geniali.*
(*k*) Wecker. *de obſerv. propriis.*
(*l*) Beniven. *de abditis. cap.* 85.
(*m*) Holler. *de morb. intern. lib.* 1. *in Schol. ad cap.* 54.
(*n*) Pereda *de curand. morb. lib.* 1. *cap.* 5.
(*o*) Hen. *ab* Heers *Obs. med. l.* 1. *Obſ.* 9. *p.* 101.

The

THE

EXPLANATION

OF THE

FIGURES.

FIGVRE I.

REpreſents the *Male Worm* opened. Where

a. Shews the three Lips of the Worm.
b. The *Oeſophagus*, or Gullet.
c c c. The large Inteſtine.
d. The *Penis*.
e e. The *Veſicula Seminalis*.
f. The *Teſtis*.

FIGVRE II.

Repreſents the *Female Worm* opened. Where

a. Shews the Mouth.
b. The Gullet.
c c c. The Inteſtine, or Gut.
d d d d. The *Vagina Vteri*.
e. The two *Cornua Vteri*.
f f f. The Spermatick Veſſels.
g. The *Anus*.

FIG.

FIGURE III.

Repreſents the Genital parts of the *Female* explicated. Where

a. Shews the *Pudendum* or *Foramen* as it appears on the out ſide of the Skin.
b. The *Vagina Uteri.*
c c. The two *Cornua Uteri.*
d d. The Spermatick Veſſels.

FIGURE IV.

Repreſents the *Eggs* of this Worm, as they appeared being viewed by the *Microſcope.*

Fig. 1.

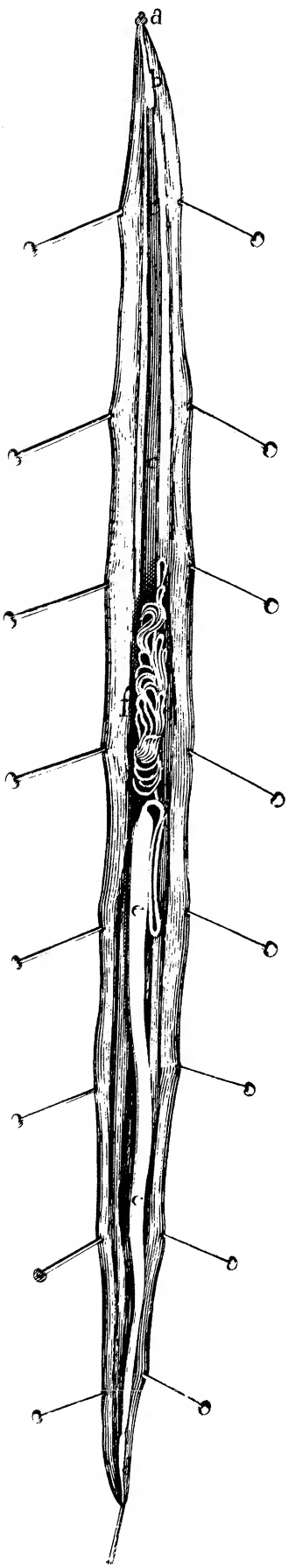


Fig. 2.

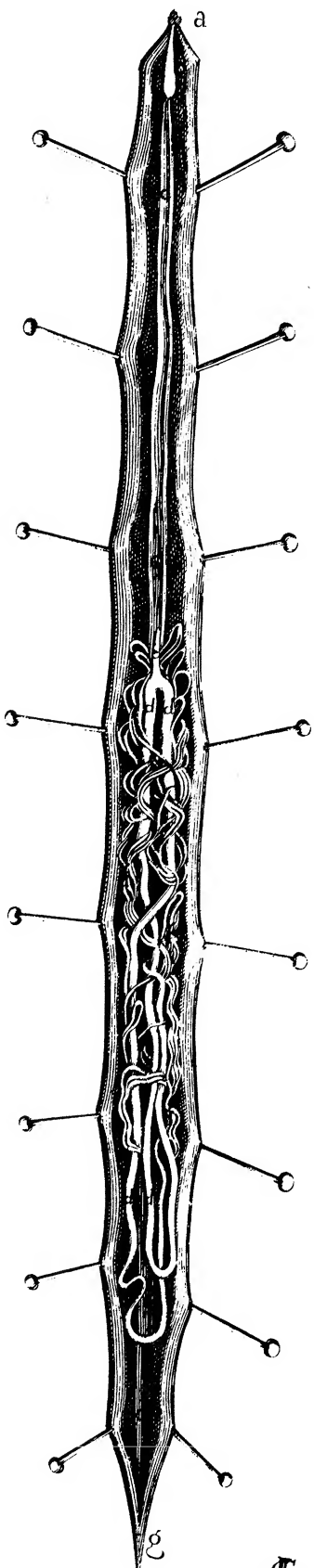


Fig. 3.

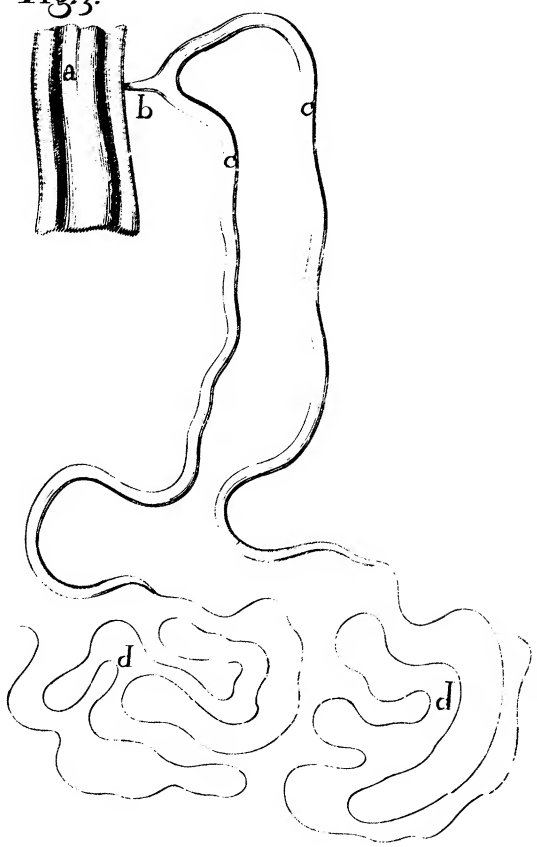


Fig. 4.

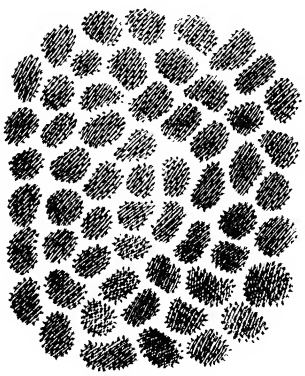
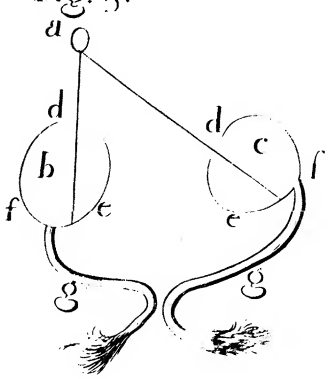


Fig. 5.



Savage sculp.